

CLAIMS:

1. Variable focus lens package (1, 2, 3), comprising:
 - a body (10), which is provided with a through-hole (11) for providing a light path through the body (10), wherein at least a surface layer of the body (10) comprises an electrically conducting material;
 - 5 - covers (30, 70) for closing off the through-hole (10), which are optically transparent in the light path;
 - an electrically insulating fluid (87) and an electrically conducting fluid (86), which are contained by a fluid chamber (85) enclosed by the covers (30, 70) and an inner surface (15) of the through-hole (11) of the body (10), which are non-miscible, and which are in contact
 - 10 over a meniscus (88), wherein a shape of the meniscus (88) is variable under the application of a voltage between the electrically conducting surface of the body (10) and the electrically conducting fluid (86);
 - an electrically insulating layer covering at least the portion of the surface of the body (10) contacting the electrically conducting fluid (86);
 - 15 - sealing means (50, 60) for sealing the fluid chamber (85); and
 - clamping means (20) for fixing the body (10), the covers (30, 70) and the sealing means (50, 60) with respect to each other under the exertion of clamping forces.
2. Variable focus lens package (1, 2, 3) according to claim 1, wherein the
- 20 clamping means (20) contact at least one of the electrically conducting surface of the body (10) and the electrically conducting fluid (86).
3. Variable focus lens package (1, 2, 3) according to claim 2, wherein the
- 25 clamping means comprise at least one clamping unit (20) having a ring (21) and clamping arms (22) extending from an outer circumference of said ring (21).
4. Variable focus lens package (1, 2, 3) according to any of claims 1-3, wherein at least one of the covers (30, 70) is capable of functioning as a lens.

5. Variable focus lens package (1, 2, 3) according to claim 4, wherein the cover (30, 70) capable of functioning as a lens comprises a glass base plate (32, 74) and a plastic lens body (31, 75) attached to the base plate (32, 74).

5 6. Variable focus lens package (1, 2, 3) according to claim 4 or 5, comprising aligning means (33, 71; 38, 77) for aligning the cover (30, 70) capable of functioning as a lens with respect to the meniscus (88) between the electrically insulating fluid (87) and the electrically conducting fluid (86).

10 7. Variable focus lens package (2, 3) according to claim 6, wherein the aligning means comprise an annular positioning member (38, 77) provided on the cover (30, 70) capable of functioning as a lens.

15 8. Variable focus lens package (1, 2, 3) according to any of claims 1-7, wherein the sealing means comprise at least one sealing ring (50, 60), which preferably comprises rubber.

20 9. Variable focus lens package (1, 2, 3) according to any of claims 1-8, comprising at least one expansion member (60, 65) which is partially flexible and which is part of a circumscription of the fluid chamber (85), wherein said expansion member (60, 65) is capable of compensating for variations of the volume of the fluids (86, 87) by keeping a pressure prevailing inside the fluid chamber (85) at a substantially fixed level.

25 10. Variable focus lens package (2, 3) according to claim 9, wherein the expansion member comprises the sealing means (60).

11. Variable focus lens package (1, 2, 3), comprising:
- a body (10), which is provided with a through-hole (11) for providing a light path through the body (10), wherein at least a surface layer of the body (10) comprises an electrically conducting material;
- covers (30, 70) for closing off the through-hole (10), which are optically transparent in the light path;
- an electrically insulating fluid (87) and an electrically conducting fluid (86), which are contained by a fluid chamber (85) enclosed by the covers (30, 70) and an inner surface (15)

of the through-hole (11) of the body (10), which are non-miscible, and which are in contact over a meniscus (88), wherein a shape of the meniscus (88) is variable under the application of a voltage between the electrically conducting surface of the body (10) and the electrically conducting fluid (86);

5 - an electrically insulating layer covering at least the portion of the surface of the body (10) contacting the electrically conducting fluid (86); and
- sealing means (50, 60) for sealing the fluid chamber (85);
wherein at least one of the covers (30, 70) is capable of functioning as a lens.

10 12. Variable focus lens package (1, 2, 3) according to claim 11, wherein the cover (30, 70) capable of functioning as a lens comprises a glass base plate (32, 74) and a plastic lens body (31, 75) attached to the base plate (32, 74).

13. Variable focus lens package (4), comprising:

15 - a body (10), which is provided with a through-hole (11) for providing a light path through the body (10), wherein at least a surface layer of the body (10) comprises an electrically conducting material;
- covers (30, 70) for closing off the through-hole (10), which are optically transparent in the light path;

20 - an electrically insulating fluid (87) and an electrically conducting fluid (86), which are contained by a fluid chamber (85) enclosed by the covers (30, 70) and an inner surface (15) of the through-hole (11) of the body (10), which are non-miscible, and which are in contact over a meniscus (88), wherein a shape of the meniscus (88) is variable under the application of a voltage between the electrically conducting surface of the body (10) and the electrically conducting fluid (86);
- an electrically insulating layer covering at least the portion of the surface of the body (10) contacting the electrically conducting fluid (86);
- sealing means (50, 60) for sealing the fluid chamber (85);
- two electrical connectors for applying a voltage, wherein at least a portion of the electrical

25 connectors is arranged at the outside of the variable focus lens package (4), wherein one electrical connector is in contact with the electrically conducting fluid (86), and wherein the body (10) serves as another electrical connector.

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14. Camera comprising a camera module (90) and a variable focus lens package (1, 2, 3, 4) according to any of claims 1-13.

15. Hand-held apparatus comprising a camera according to claim 14, and further comprising input means, information processing means and display means.